

EDITORIALS



Full Disclosure and the Funding of Biomedical Research

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Clinical studies have become very expensive to conduct, and multiple sources of funding often support a single study. Biomedical journals routinely disclose all sources of funding of the research they publish; this has been standard practice at the *Journal* for many years. As funding mechanisms grow increasingly complex, however, it has become ever more challenging for editors to ensure the complete reporting of all sources of financial support.

Why is this important? Although the science in a submitted manuscript should be judged on its merits, one cannot fully appreciate a study's meaning without acknowledging the subtle biases in design and interpretation that may arise when a sponsor stands to gain from the report. Because of these subtleties, it is especially important that any such associations be made clear to the *Journal's* readers, who can then judge their relevance for themselves.

Recent years have seen the creation of non-profit foundations housed at academic institutions but organized for the benefit of individual investigators and funded by industry sponsors. Such foundations may on the one hand be helpful in providing needed research funds at a time when there are constraints on funding from the National Institutes of Health, especially for clinical trials. On the other hand, such foundations may not be required to publicly disclose the details of their own funding sources and expenditures. Thus, editors, reviewers, and readers are left in the dark about the actual sources of support for a research project.

In October 2006 we published an article by the Lung Cancer Screening Group¹ in which computed tomographic (CT) scanning was used to

screen a high-risk population for evidence of early-stage lung cancer. From the data they gathered, the authors concluded that the majority of stage I lung cancers treated after their detection by CT screening had a favorable prognosis.

The Lung Cancer Screening Group's research was funded by 32 different entities, one of which was the Foundation for Lung Cancer: Early Detection, Prevention and Treatment. It has not been our practice to inquire about the specific sources of funding of foundations such as this. We recently learned, however, that this foundation was headed by the principal investigator of the 2006 study, that it was housed at her academic institution, and that the only contributor during most of its existence was the Vector Group, the parent company of Liggett, a major tobacco company. We and our readers were surprised to learn that the source of the funding of the charitable foundation was, in fact, a large corporation that could have an interest in the study results.

This situation raises two concerns. First, as medical journal editors, we believe that it is important that the ultimate source of funding be made clear to the *Journal's* readers. Second, it is appropriate to ask whether a study on clinical outcomes in lung cancer should be directly underwritten in part by the tobacco industry. Given the enormous burden of smoking-related illness and the ongoing sale of cigarettes and other forms of tobacco, one might question the advisability of research entities accepting funding from tobacco companies except through the American Legacy Foundation, which distributes funds received through the Master Settlement Agreement with U.S. tobacco companies.

We believe that it is important for our readers and the entire biomedical community to be aware of this situation. Our goal is that readers be fully informed about funding sources. It is the responsibility of authors to disclose fully and appropriately the sources of funding of their studies. We expect that authors will be particularly attentive to transparency in reporting if a

funding entity has a vested interest in the outcome. The public's trust in biomedical research depends on it.

This article (10.1056/NEJMe0802618) was published at www.nejm.org on April 2, 2008.

1. The International Early Lung Cancer Action Program Investigators. Survival of patients with stage I lung cancer detected on CT screening. *N Engl J Med* 2006;355:1763-71.

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Percutaneous Intervention vs. Coronary-Artery Bypass Grafting in Left Main Coronary Disease

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A recent meta-analysis, report, and editorial all agreed with the need for a randomized trial of percutaneous coronary intervention (PCI) as compared with coronary-artery bypass grafting (CABG) in patients with left main coronary artery disease.¹⁻³ The meta-analysis reported results of 16 observational studies on 1278 patients undergoing PCI with drug-eluting stents for unprotected left main coronary artery disease.¹ Mortality was 2.3% during hospitalization and 5.5% at the time of last follow-up, at a median of 10 months. Five randomized comparisons of PCI and CABG were noted to be ongoing, with combined enrollment goals exceeding 2400 patients with unprotected left main coronary artery disease.

The authors of the report, most of whom are cardiac surgeons,² agreed cautiously with the need for a randomized trial of percutaneous intervention as compared with coronary-artery bypass surgery in patients with left main coronary artery disease. However, they issued a strong reminder that CABG should remain the preferred revascularization treatment for left main coronary artery disease until future randomized trials definitively show PCI to be equivalent or superior to CABG. The author of the editorial³ agreed somewhat grudgingly with this approach, but with the insightful observation that the trial should be designed to inform management decisions for individual patients and not as a competition to identify the winning technology. His contention was that coronary disease typically spans decades of life, and the durability of any early treatment benefit demonstrated for PCI or CABG would need to be counterbalanced by the possibility of unfavorable health consequences later in life. Im-

planted stents and bypass conduits over time may become more of a disease than a treatment.

Although I agree that all these reasons justify a call for a randomized trial, none of them is the primary reason why I think such a trial is warranted. I do not think that readers should be seduced by the compelling case for equivalence of these two revascularization techniques that is made by Seung et al. for the MAIN-COMPARE (Revascularization for Unprotected Left Main Coronary Artery Stenosis: Comparison of Percutaneous Coronary Angioplasty versus Surgical Revascularization) study in this issue of the *Journal*.⁴ If PCI operators equate the greater safety of PCI over a period of 3 years, shown by Seung et al., with greater effectiveness of PCI over a lifetime and decline to randomly assign patients with unprotected left main coronary artery disease into clinical trials, the opportunity to definitively answer this question may be forever lost.

The strength of the MAIN-COMPARE study derives from the commitment of cardiac surgeons and cardiologists at 12 major academic institutions in Korea to intend to treat all patients with unprotected left main coronary artery disease preferentially with PCI unless such patients had specific contraindications to or declined PCI. Complex left main coronary-artery anatomy was a relative contraindication. During the 6.5-year enrollment interval, 1138 of 2240 patients (51%) were treated with CABG, and 1102 (49%) underwent revascularization with PCI. Bare-metal stents were used exclusively during the first half of this interval (early era), and drug-eluting stents were used exclusively during the second half (late era). The total number of procedures performed almost